



Northeast Fisheries Science Center Reference Document 23-01

Summary of the 2020 New England and Mid-Atlantic Gillnet and Bottom Trawl Observer Data

February 2023



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This report summarizes observed bycatch of small cetaceans and pinnipeds in the New England sink gillnet (NESG) and bottom trawl (NEBT) fisheries and the Mid-Atlantic gillnet (MAG) and bottom trawl (MABT) fisheries, as well as observed compliance with Harbor Porpoise Take Reduction Plan (HPTRP) requirements for the gillnet fisheries. In the gillnet fisheries, 4 species of small cetaceans and pinnipeds were bycaught (Figure 1). In the bottom trawl fisheries, 7 species of small cetaceans and pinnipeds were bycaught (Figure 2). In other fisheries, only 1 other bycaught marine mammal was observed: a gray seal (*Halichoerus grypus atlantica*) in a New England scallop dredge (Figure 3).

Observer coverage was low in 2020 because of the COVID-19 pandemic. In the NESG fishery, 2.85% of commercial trips carried observers, compared with 12.80% in 2019, and in the MAG fishery, 3.00% of trips were observed in 2020, compared with 10.50% in 2019. In the NEBT fishery, there were observers on 8.20% of commercial trips, compared with 16.17% in 2019, and in the MABT fishery, 1.93% of trips were observed in 2020, compared with 11.61% in 2019. Because protected species bycatch are rare but influential events, the overall low broad-scale observer coverage and the uneven coverage at finer scale times and areas created inaccurate accounting of where and when bycatch occurred, and would produce imprecise estimates of the uncertainty measures (coefficients of variation [CVs]) and potentially biased point estimates. On the one hand, the low observer coverage increases the real uncertainty in bycatch estimates, especially for species that are infrequently bycaught in this region—including small cetacean and pinniped species—and on the other hand, strata with no bycatch would artificially lower the point estimate and the uncertainty measurement. Bycatch rates and mortality estimates were not calculated for 2020 because of the difficulty in interpreting imprecise and biased estimates and because they would be incomparable with prior years. Likewise, the bycatch events described in this report are not comparable to either the observed or estimated bycatch in prior years.

Part of the bycatch analysis process is to review any cases of observed fishery interactions that were recorded with a release status of “alive” or “unknown.” These animals are included in the bycatch analysis, and the injury determination affects the proration of estimates between serious injury and mortality. Injury determinations are performed according to national guidelines (NMFS 2012) and published in an annual center reference document (e.g., Josephson et al. 2021). In 2020, there were no records of observed marine mammal interactions in New England or Mid-Atlantic fisheries in which the animal was released alive, likely because of reduced observer coverage due to COVID-19 restrictions. Therefore, no mortality and serious injury report for small cetaceans and pinnipeds will be published for 2020.

NEW ENGLAND SINK GILLNET FISHERY

In the NESG fishery, 2.85% of commercial trips carried observers (Table 1). Commercial effort is reported as the number of trips from vessel trip reports (VTRs), and coverage is calculated as the percent of commercial trips observed. Observed NESG bycatch consisted of 2 common dolphins (*Delphinus delphis delphis*), 10 harbor porpoise (*Phocoena phocoena phocoena*), 4 harbor seals (*Phoca vitulina vitulina*), 14 gray seals, and 1 unidentified seal (Table 2; Figure 1). Observed pinger use is reported in Table 3; these counts reflect solely whether pingers were present and not whether they were operational.

MID-ATLANTIC GILLNET FISHERY

In the MAG fishery, 3.00% of trips were observed in 2020 (Table 4). Commercial effort was reported as the number of trips from VTRs, except for North Carolina, where the commercial effort was the number of trips with North Carolina Division of Marine Fisheries trip tickets. Coverage was calculated as the percent of commercial trips observed. Observed MAG bycatch was 1 harbor porpoise and 2 harbor seals (Table 5; Figure 2). Observed compliance with the requirements of the Mid-Atlantic 2010 HPTRP is reported in Table 6.

BOTTOM TRAWL FISHERIES

Total NEBT and MABT effort (in trips) in 2020 was similar to the previous 5-year time period (Table 7). However, observer coverage was considerably reduced due to the pandemic. Observer coverage in 2020 NEBT and MABT fisheries was 8.20% and 1.93%, respectively. The NEBT and MABT 2020 observer coverage reflects a 42% and 83% reduction from their averages over the preceding 5 years (Table 7). Most of the reduction in 2020 observer coverage occurred during the summer season (May-August) across all three ecological production units: Georges Bank (GB), Gulf of Maine (GOM), and Mid-Atlantic (MA), followed by the winter (January-April) in GB and fall (September-December) in the MA region (2019: Table 8; 2020: Table 9).

Observed 2020 NEBT bycatch included 5 Atlantic white-sided dolphins (*Lagenorhynchus acutus*), 2 common dolphins, 1 harbor seal, and 7 gray seals (Table 10; Figure 2). Observed MABT bycatch consisted of 54 common dolphins, 2 Risso's dolphins (*Grampus griseus*), 1 offshore common bottlenose dolphin (*Tursiops truncatus truncatus*), 1 short-finned pilot whale (*Globicephala macrorhynchus*), 1 harbor seal, and 1 gray seal (Table 10; Figure 2).

TABLES AND FIGURES

Table 1. Summaries of observed hauls, observed trips, commercial trips, observed landings in metric tons (mt), and observer coverage by season and portgroup (P) or Harbor Porpoise Take Reduction Plan management area (MA) for the 2020 New England sink gillnet fishery (Figure 1a). The seasons were defined as “F” (fall; September-December), “S” (summer; June-August), and “W” (winter; January-May).

Season	Area	Observed Hauls ^a	Observed Trips	Commercial Trips	Observed Landings (mt)	Observed Coverage (trips)
W	Cape Cod South (MA)	8 (7)	3	231	8.88	1.30%
W	Cashes Ledge (MA)	0 (0)	0	1	0.00	0.00%
W	East of Cape Cod (P)	0 (0)	0	109	0.00	0.00%
W	Massachusetts Bay (MA)	1 (0)	1	10	0.01	10.00%
W	Mid-Coast (MA)	100 (0)	23	85	20.73	27.06%
W	North of Boston (P)	0 (0)	0	2	0.00	0.00%
W	Offshore (MA)	19 (0)	4	12	8.47	33.33%
W	Offshore (P)	10 (0)	2	3	1.68	66.67%
W	South of Boston (P)	1 (0)	1	1	0.02	100.00%
W	South of Cape Cod (P)	0 (0)	0	67	0.00	0.00%
W	Southern Maine (P)	0 (0)	0	4	0.00	0.00%
W	Southern New England (MA)	45 (22)	15	337	55.64	4.45%
W	Stellwagen Bank (MA)	22 (0)	7	57	0.44	12.28%
W	Subtotal	206 (29)	56	919	95.87	6.09%
S	East of Cape Cod (P)	7 (0)	3	1,401	11.27	0.21%

Season	Area	Observed Hauls ^a	Observed Trips	Commercial Trips	Observed Landings (mt)	Observed Coverage (trips)
S	Maryland (P)	0 (0)	0	1	0.00	0.00%
S	Northern Maine (P)	0 (0)	0	3	0.00	0.00%
S	New Hampshire (P)	3 (0)	1	286	1.37	0.35%
S	North of Boston (P)	16 (0)	4	119	5.82	3.36%
S	Offshore (P)	0 (0)	0	38	0.00	0.00%
S	South of Boston (P)	0 (0)	0	99	0.00	0.00%
S	South of Cape Cod (P)	0 (0)	0	570	0.00	0.00%
S	Southern Maine (P)	0 (0)	0	22	0.00	0.00%
S	Subtotal	26 (0)	8	2,539	18.47	0.32%
F	Cape Cod South (MA)	8 (5)	3	27	11.64	11.11%
F	East of Cape Cod (P)	3 (0)	1	694	8.22	0.14%
F	Mid-Coast (MA)	148 (23)	41	172	52.55	23.84%
F	New Hampshire (P)	5 (0)	2	55	2.09	3.64%
F	North of Boston (P)	95 (21)	10	35	28.93	28.57%
F	Offshore (MA)	0 (0)	0	2	0.00	0.00%
F	Offshore (P)	0 (0)	0	10	0.00	0.00%
F	South of Boston (P)	3 (0)	2	4	1.42	50.00%
F	South of Cape Cod (P)	13 (5)	6	327	16.52	1.83%

Season	Area	Observed Hauls ^a	Observed Trips	Commercial Trips	Observed Landings (mt)	Observed Coverage (trips)
F	Southern Maine (P)	16 (9)	3	23	5.86	13.04%
F	Southern New England (MA)	2 (0)	1	28	4.74	3.57%
F	Stellwagen Bank (MA)	15 (4)	5	11	0.87	45.45%
F	Subtotal	308 (67)	74	1,388	132.85	5.33%
all	Total	540 (96)	138	4,846	247.18	2.85%

^aParentheses indicate the number of limited sampling hauls out of the total (i.e., total = complete hauls + limited hauls). During complete sampling, observers do not explicitly watch haulbacks and may fail to see bycatch of marine mammals that fall out of the net prior to being hauled on board. During limited sampling, the observer watches the net during haulbacks, reducing the chance of unnoticed bycatch.

Table 2. Summary of observed bycatch by species, season, and portgroup (P) or Harbor Porpoise Take Reduction Plan management area (MA) for the 2020 New England sink gillnet fishery. The seasons were defined as “F” (fall; September-December), “S” (summer; June-August) and “W” (winter; January-May).

Species	Season	Area	Observed Bycatch
common dolphin (<i>Delphinus delphis delphis</i>)	F	North of Boston (P)	1
common dolphin	F	Southern New England (MA)	1
harbor porpoise (<i>Phocoena phocoena phocoena</i>)	F	Mid-Coast (MA)	1
harbor porpoise	F	Stellwagen Bank (MA)	4
harbor porpoise	W	Mid-Coast (MA)	5
unidentified seal	W	Southern New England (MA)	1
harbor seal (<i>Phoca vitulina vitulina</i>)	W	Southern New England (MA)	4
gray seal (<i>Halichoerus grypus atlantica</i>)	W	Cape Cod South (MA)	3
gray seal	W	Mid-Coast (MA)	1
gray seal	W	Southern New England (MA)	10

Table 3. Summary of 2020 full pinger deployment for Northeast Fisheries Observer Program observed hauls within times and areas where pingers were required by the 2010 Harbor Porpoise Take Reduction Plan. This data addresses only the number of pingers present, not whether they were operational. Seasons are defined as “W” (winter; January-May) and “F” (fall; September-December).

Season	Management Area	Observed Hauls	Hauls with < 100% of Required Pingers	% with all Required Pingers
F	Cape Cod South	8	2	75%
F	MidCoast	148	8	94.6%
F	Southern New England	2	0	100%
F	Stellwagen Bank	15	0	100%
W	Cape Cod South	8	0	100%
W	MassBay	1	0	100%
W	MidCoast	100	0	100%
W	Offshore	19	5	73.7%
W	Southern New England	45	32	28.9%
W	Stellwagen Bank	22	4	81.8%
Total		368	51	86.1%

Table 4. Summaries of observed trips, commercial trips, observed landings in metric tons (mt), and observer coverage by state for the 2020 Mid-Atlantic gillnet fishery (Figure 1b). Effort from bays and sounds is not included.

State	Observed Hauls ^a	Observed Trips	Commercial Trips	Observed Landings (mt)	Observed Coverage (trips)
Maryland	0 (0)	0	176	0.00	0.00%
New Jersey	133 (0)	50	1,227	87.18	4.07%
New York	0 (0)	0	173	0.00	0.00%
North Carolina	494 (435)	70	4,188	96.29	1.67%
Virginia	366 (48)	86	1,106	194.70	7.78%
Total	993 (483)	206	6,870	378.17	3.00%

^aParentheses indicate the number of limited sampling hauls out of the total (i.e., total = complete hauls + limited hauls). During complete sampling, observers do not explicitly watch haulbacks and may fail to see bycatch of marine mammals that fall out of the net prior to being hauled on board. During limited sampling, the observer watches the net during haulbacks, reducing the chance of unnoticed bycatch.

Table 5. Summaries of bycatch, observed hauls, observed trips, commercial trips, and observer coverage by species, season, region, mesh size, and soak duration for strata with bycatch in the 2020 Mid-Atlantic gillnet fishery.

Species	Season	Region	Mesh Size (in)	Soak Duration (h)	Observed Hauls ^a	Observed Trips	Commercial Trips	Observer Coverage (trip)	Observed Bycatch
harbor porpoise (<i>Phocoena phocoena phocoena</i>)	Jan-Apr	Waters off New Jersey	>= 7	<= 72	88 (0)	31	193	16.06%	1
harbor seal (<i>Phoca vitulina vitulina</i>)	Dec-May	Waters off New Jersey	>= 7	<= 72	88 (0)	31	400	7.75%	2

^aParentheses indicate the number of limited sampling hauls out of the total (i.e., total = complete hauls + limited hauls). During complete sampling, observers do not explicitly watch haulbacks and may fail to see bycatch of marine mammals that fall out of the net prior to being hauled on board. During limited sampling, the observer watches the net during haulbacks, reducing the chance of unnoticed bycatch.

Table 6. Observed number of hauls for large (7-18") and small (at least 5" but less than 7") mesh gillnets following requirements of the Mid-Atlantic Harbor Porpoise Take Reduction Plan (HPTRP). Observed hauls missing information for an assessed gear modification were assumed to be following the HPTRP for that gear characteristic and were not included in the count of non-compliant hauls.

Management Area	Observed Hauls	Non-Compliant Hauls	Compliance %	General HPTRP Non-adherence Categories		Specific HPTRP Non-adherence Categories						Missing Some Gear Information ^a
				Gear Modification	Closed Area	Multiple Violations per Haul	Number of Nets	Twine Size	Tie-Down Length	Tie-Down Use	Net Length	
Mudhole North Large Mesh	7	6	14%	6	0	2	4	0	0	2	0	0
Mudhole South Large Mesh	9	9	0%	9	0	0	9	0	0	0	0	0
Southern Mid-Atlantic Small Mesh	133	44	67%	44	0	5	2	16	0	4	27	52
Waters off New Jersey Large Mesh	96	45	53%	45	0	8	30	0	8	15	0	27
Totals	245	104	58%	104	0	15	45	16	8	21	27	79

^aHauls for which at least 1 gear component was not recorded and therefore could not be checked for compliance. There may be some hauls which are not compliant with one category of gear and are missing information about another category of gear and which therefore appear in both this column and one of the gear non-adherence columns.

Table 7. Total effort (VTRs), observed effort, and observer coverage (% trips) in New England (NE) and the Mid-Atlantic (MA) bottom trawl commercial fishery for 2015-2020. Observer coverage is the percentage of observed trips relative to total Vessel Trip Report (VTR) trips.

Effort	Region	2015	2016	2017	2018	2019	2020	Mean (2015-2019)
Total VTR Trips	NE	4,611	4,868	5,201	5,048	5,138	5,571	4,973
	MA	9,572	11,069	8,592	8,727	13,592	11,885	10,310
Observed Trips	NE	857	590	635	613	831	457	705
	MA	904	1,078	1,197	1,053	1,578	229	1,162
Observed Tows	NE	10,361	5,926	6,151	4,966	7,643	5,112	7,009
	MA	5,486	6,834	7,984	7,180	8,627	1,940	7,222
Observer Coverage (%)	NE	18.59	12.12	12.21	12.14	16.17	8.20	14.25
	MA	9.44	9.74	13.93	12.00	11.61	1.93	11.34

Table 8. Effort and observed bycatch for 2019 bottom trawl fishery, for comparison. Total (vessel trip reports [VTRs]) and observed (obs) effort reported in terms of both trips (trips_obs, trips_vtr) and days fished (dysfish_obs, dysfish_vtr), percent coverage (cov_trips, cov_dysfish), and observed bycatch by region (New England [NE], Mid-Atlantic [MA]), ecological production unit (EPU: Georges Bank [gb], Gulf of Maine [gom], Mid-Atlantic Bight [mab]), and season (winter: Jan-Apr, summer: May-Aug, fall: Sep-Dec). Observed bycaught marine mammals include harbor porpoise (*Phocoena phocoena phocoena*), common dolphin (*Delphinus delphis delphis*), white-sided dolphin (*Lagenorhynchus acutus*; WSD), bottlenose dolphin (*Tursiops truncatus truncatus*), long-finned (LF) pilot whale (*Globicephala melas melas*), gray seal (*Halichoerus grypus atlantica*), harbor seal (*Phoca vitulina vitulina*), and harp seal (*Pagophylus groenlandicus*).

REGION	EPU	SEASON	HAULS	TRIPS_OBS	DYSFISH_OBS	TRIPS_VTR	DYSFISH_VTR	COV_TRIPS	COV_DYSFISH	Harbor Porpoise	Common Dolphin	WSD	Risso's Dolphin	Bottlenose Dolphin	LF-Pilot Whale	SF-Pilot Whale	Gray Seal	Harbor Seal	Harp Seal
NE	gb	F	407	33	66	150	306	22.00	21.57	1									
NE	gb	S	894	60	125	522	694	11.49	18.01			2		1			1		
NE	gb	W	164	30	26	132	200	22.72	13.00			2							
NE	gom	F	1911	236	314	1394	1615	16.92	19.44										
NE	gom	S	2126	246	310	1455	1355	16.90	22.88			1						2	
NE	gom	W	2141	226	388	1485	2073	15.21	18.72	2	1	9			1		3	1	1
MA	mab	F	2842	473	257	4291	1798	11.02	14.29		35						1		
MA	mab	S	3303	805	299	6231	2205	12.91	13.56								2	1	
MA	mab	W	2482	300	278	3070	2192	9.77	12.68		19								
Total										2	56	14	0	1	1	0	9	2	1

Table 9. Effort and observed bycatch for 2020 bottom trawl fishery. Total (vessel trip reports [VTRs]) and observed (obs) effort reported in terms of both trips (trips_obs, trips_vtr) and days fished (dysfish_obs, dysfish_vtr), percent coverage (cov_trips, cov_dysfish), and observed bycatch by region (New England [NE], Mid-Atlantic [MA]), ecological production unit (EPU: Georges Bank [gb], Gulf of Maine [gom], Mid-Atlantic Bight [mab]) and season (winter: Jan-Apr, summer: May-Aug, fall: Sep-Dec). Observed bycaught marine mammals include common dolphin (*Delphinus delphis delphis*), white-sided dolphin (*Lagenorhynchus acutus*; WSD), Risso’s dolphin (*Grampus griseus*), bottlenose dolphin (*Tursiops truncatus truncatus*), short-finned (SF) pilot whale (*Globicephala macrorhynchus*), gray seal (*Halichoerus grypus atlantica*), and harbor seal (*Phoca vitulina vitulina*).

REGION	EPU	SEASON	HAULS	TRIPS_OBS	DYSFISH_OBS	TRIPS_VTR	DYSFISH_VTR	COV_TRIPS	COV_DYSFISH	Harbor Porpoise	Common Dolphin	WSD	Risso's Dolphin	Bottlenose Dolphin	LF-Pilot Whale	SF-Pilot Whale	Gray Seal	Harbor Seal	Harp Seal
NE	gb	F	344	28	59	153	320	18.30	18.44										
NE	gb	S	121	11	16	593	952	1.85	1.68										
NE	gb	W	67	12	9	268	439	4.48	2.05										
NE	gom	F	2615	199	400	1518	1953	13.11	20.48	1							2		
NE	gom	S	179	16	30	1597	1620	1.00	1.85										
NE	gom	W	1786	191	308	1442	1997	13.25	15.42	1	5						5	1	
MA	mab	F	510	71	57	3943	1636	1.80	3.48		5								
MA	mab	S	39	14	4	5426	1716	0.26	0.23		3								
MA	mab	W	1391	144	165	2516	1816	5.72	9.09		46		2	1		1	1	1	
Total										0	56	5	2	1	0	1	8	2	0

Table 10. Total number of observed marine mammals bycaught, excluding decomposed animals, in New England (NE) and Mid-Atlantic (MA) commercial bottom trawl gear from 2015-2019, compared to 2020.

Species	Region	Observed Animals Bycaught						
		2015	2016	2017	2018	2019	2020	Mean (2015-2019)
Atlantic white-sided dolphin (<i>Lagenorhynchus acutus</i>)	NE	3	4	2	0	14	5	4.6
Common dolphin (<i>Delphinus delphis delphis</i>)	NE	4	2	0	4	2	2	2.4
	MA	26	22	66	35	54	54	40.6
Risso's dolphin (<i>Grampus griseus</i>)	NE	0	2	0	0	0	0	0.4
	MA	3	4	7	0	0	2	2.8
Offshore common bottlenose dolphin (<i>Tursiops truncatus truncatus</i>)	NE	3	4	0	0	1	0	1.6
	MA	0	1	3	1	0	1	1.0
Harbor porpoise (<i>Phocoena phocoena phocoena</i>)	NE	0	0	0	0	2	0	0.4
Long-finned pilot whale (<i>Globicephala melas melas</i>)	NE	0	4	0	0	1	0	1.0
Short-finned pilot whale (<i>Globicephala macrorhynchus</i>)	MA	0	0	0	0	0	1	0.0
Harbor seal (<i>Phoca vitulina vitulina</i>)	NE	0	0	1	0	1	1	0.4
	MA	1	0	0	1	1	1	0.6
Gray seal (<i>Halichoerus grypus atlantica</i>)	NE	4	0	2	5	6	7	3.4
	MA	0	3	5	7	3	1	3.6
Harp seal (<i>Pagophylus groenlandicus</i>)	NE	0	0	0	0	1	0	0.2

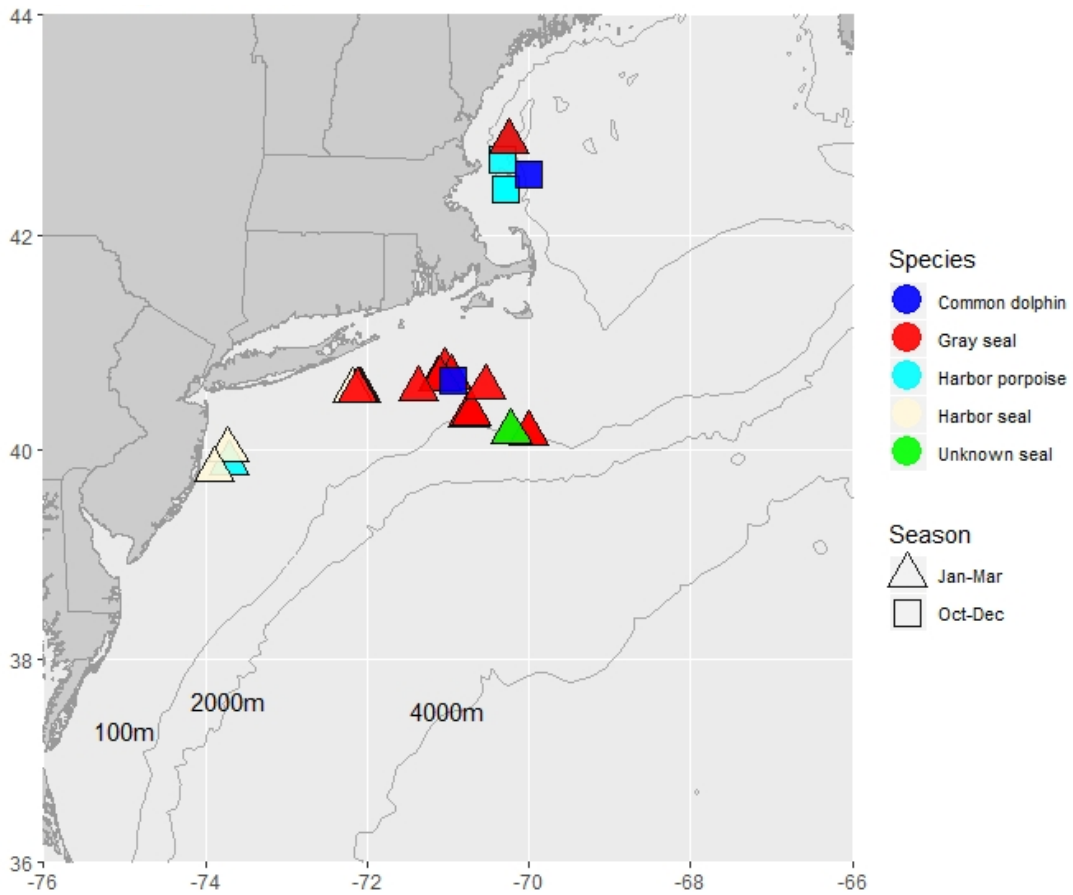
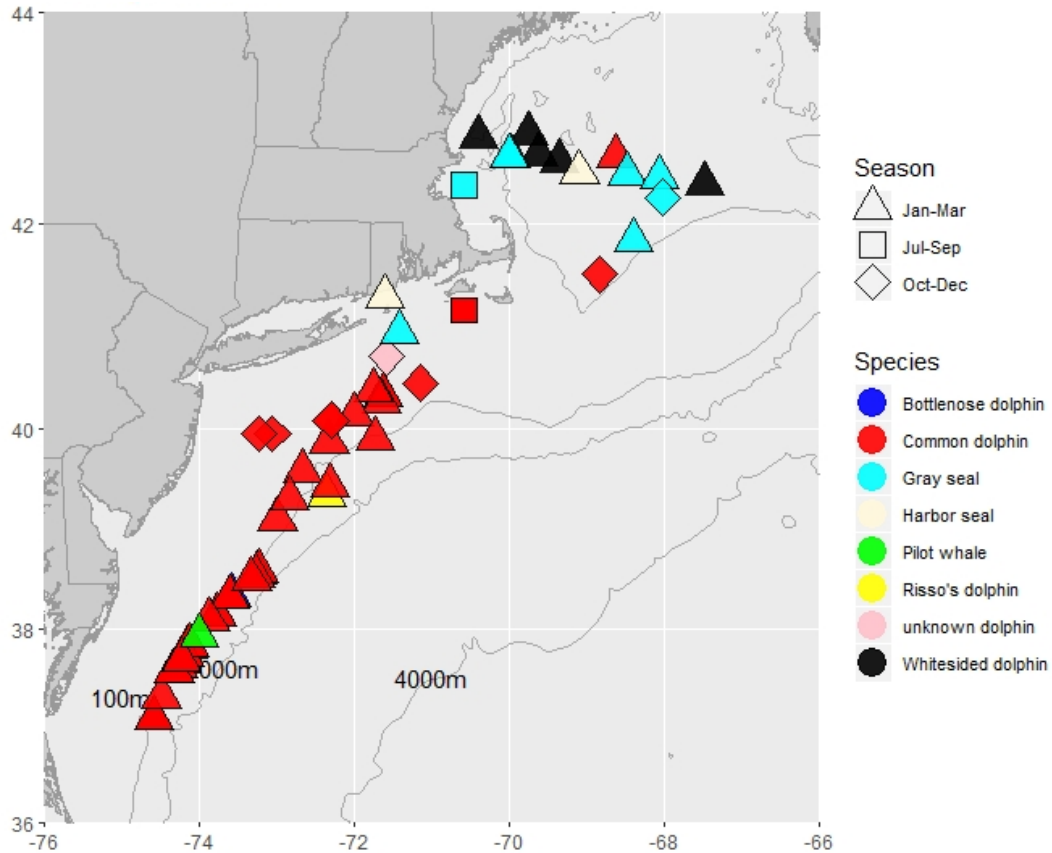


Figure 1. Locations of observed marine mammal bycatch in New England and Mid-Atlantic gillnets in 2020, together with ocean bathymetric contours showing 100, 2000, and 4000 m depths. Some trips caught more than one animal of the same or different species.



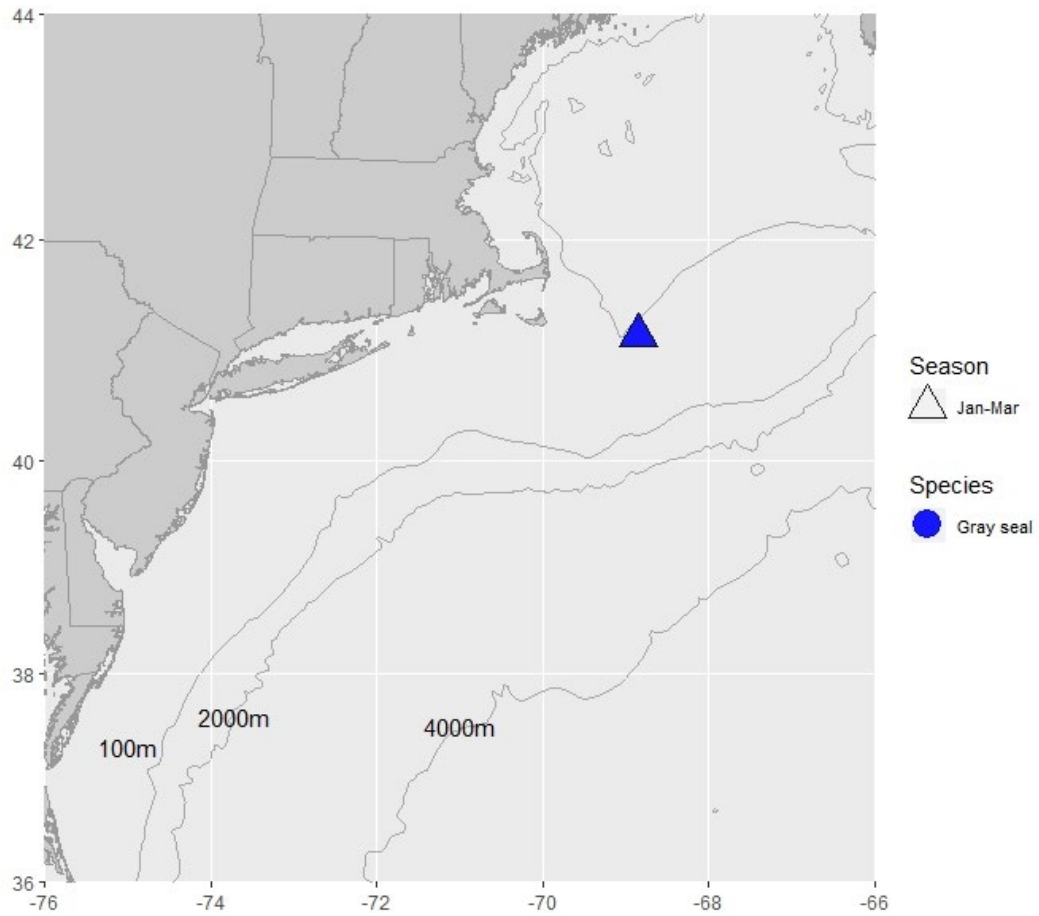


Figure 3. Location of an observed gray seal bycaught in a scallop dredge in 2020, together with ocean bathymetric contours showing 100, 2000, and 4000 m depths.

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